

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Jeng H. Hwang et al.

SERIAL NO.: 09/421,467

FILED: October 19, 1999

FOR: MASKING METHODS AND ETCHING  
SEQUENCES FOR PATTERNING ELECTRODES  
OF HIGH DENSITY RAM CAPACITORS

§ GROUP ART UNIT: 1756

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EXAMINER: N. Barreca

Attorney Docket No.:  
AM-2602.P1

Date: August 24, 2001

**ASSOCIATE POWER OF ATTORNEY**

Hon. Commissioner for Patents  
Washington, DC 20231


Sir:

The undersigned principal attorney of record hereby appoints Joseph Bach (Reg. No. 37,771), Shirley L. Church (Reg. No. 31,858), and Kathi Bean (Reg. No. 36,644) as authorized associate attorneys/agents in the above identified application.

**CERTIFICATE OF MAILING UNDER 37 CFR 1.10**

I hereby certify that this paper is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as U.S. EXPRESS MAIL NO. ET160381295US in an envelope addressed to the: Commissioner for Patents, Box Patent Application, Washington, DC 20231.

Date: August 24, 2001

  
Shirley L. Church, Reg. No. 31,858

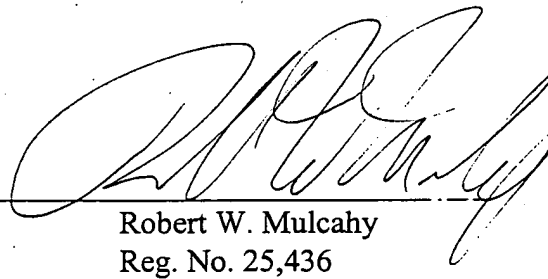
Please send all correspondence concerning the above identified application to the following address:

Patent Counsel  
Applied Materials, Inc.  
P.O. Box 450-A  
Santa Clara, CA 95052

Please direct all telephone calls concerning the above identified application to Shirley L. Church at (408) 245-5109.

I, the undersigned, am listed on the original Power of Attorney filed with the subject application.

8/24/01  
Date

  
Robert W. Mulcahy  
Reg. No. 25,436

Correspondence Address:  
Patent Counsel  
Applied Materials, Inc.  
P.O. Box 450-A  
Santa Clara, California 95052

**COMBINED DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I hereby declare that:

This declaration is of the following type:

original  
divisional  
continuation  
[X] continuation-in-part

**INVENTORSHIP IDENTIFICATION**

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**TITLE OF INVENTION**

**Improved Masking Methods And Etching Sequences For Patterning  
Electrodes Of High Density Ram Capacitor**

**SPECIFICATION IDENTIFICATION**

The specification of which:

[ ] is attached hereto  
[X] was filed on 19OC1999, under Serial No. 09/421,467, executed on even date herewith; or  
[ ] Express Mail No.  
and was amended on \_\_\_\_\_ (if applicable)  
[ ] was described and claimed in PCT International Application No. \_\_\_\_\_  
3  
filed on \_\_\_\_\_ and as amended under PCT Article 19 on \_\_\_\_\_.

**ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56,

and which is material to the examination of this application; namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and

[ ] In compliance with this duty there is attached an Information Disclosure Statement in accordance with 37 CFR §1.98.

**PRIORITY CLAIM (35 U.S.C. §119)**

I hereby claim foreign priority benefits under Title 35, United States Code, §119, of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than

the United States of America listed below, and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

☒ No such applications have been filed.

☐ Such applications have been filed as follows:

**A. Prior foreign/PCT application(s) filed within 12 mos. (6 mos. for design) prior to this application, and any priority claims under 35 U.S.C. §119**

<u>Country/PCT</u>	<u>Application No</u>	<u>Date Filed</u>	<u>Priority Claimed</u>
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

**B. All foreign application(s), if any, filed more than 12 mos. (6 mos for design) prior to this U.S. application**

Country:  
Application No:  
Filing date:

**PRIORITY CLAIM (35 U.S.C. §120)**

I hereby claim the benefit under Title 35, United States Code, §120, of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information that is material to the examination of this application (namely, information where there is substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

☐ No such applications have been filed  
☒ Such applications have been filed, as follows:

This is a continuation-in-part patent application of copending patent application entitled "MASKING METHODS AND ETCHING SEQUENCES FOR PATTERNING ELECTRODES OF HIGH DENSITY RAM CAPACITORS," Serial No. 09/251,588, filed February 17, 1999. Copending patent application Serial No. 09/251,588 is a continuation-in-part patent application of copending patent application entitled "ETCHING METHODS FOR ANISOTROPIC PLATINUM PROFILE," Serial No. 09/006,092, filed January 13, 1998.

This is also a continuation-in-part application of copending patent application entitled "IMPROVED ETCHING METHOD FOR ANISOTROPIC PLATINUM PROFILE," Serial No. 09/251,826, filed February 17, 1999. Copending patent application Serial No. 09/251,826 is a continuation-in-part patent application of copending patent application entitled "ETCHING METHODS FOR ANISOTROPIC PLATINUM PROFILE," Serial No. 09/006,092, filed January 13, 1998. This is also a continuation-in-part application of copending patent application entitled "IRIDIUM ETCHING METHODS FOR ANISOTROPIC PROFILE," Serial No. 09/251,633,

filed February 17, 1999. Copending patent application Serial No. 09/251,633 is a continuation-in-part patent application of copending patent application entitled "ETCHING METHODS FOR ANISOTROPIC PLATINUM PROFILE, Serial No. 009/006,092, filed January 13, 1998. Benefit of all earlier filing dates with respect to all common subject matter is claimed.

### POWER OF ATTORNEY

I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Michael L. Sherrard	Registration No. 28,041
Peter J. Sgarbossa	Registration No. 25,610
Donald Verplancken	Registration No. 33,217
Lawrence Edelman	Registration No. 25,226
Michael B. Einschlag	Registration No. 29,301
Raymond Kam-On Kwong	Registration No. 37,165
James C. Wilson	Registration No. 35,412
Robert W. Mulcahy	Registration No. 25,436
Robert C Colwell	Registration No. 27,431
William Shaffer	Registration No. 37,234

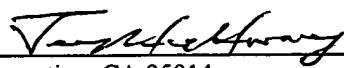
Send correspondence to:  
Patent Counsel, MS/2061  
Legal Affairs Dept.  
Applied Materials, Inc.  
P. O. Box 450A  
Santa Clara, CA 95052

Direct telephone calls to:  
TOWNSEND TOWNSEND AND CREW  
Mr. John W. Carpenter  
Two Embarcadero Center, Eight Floor  
San Francisco, California 94111  
Telephone (415) 273-7577,  
Fax (415) 576-0300fa

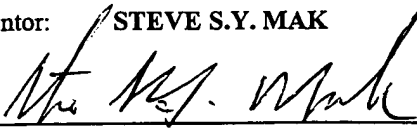
### DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Sec. 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Full name of sole or first inventor: JENG H. HWANG

Inventor's signature:  Date: 11-19-99  
Residence: Cupertino, CA 95014  
Post Office Address: 20835 Scofield Drive  
Cupertino, California 95014  
U.S.A. Country of Citizenship: United States of America

Full name of second inventor: STEVE S.Y. MAK

Inventor's signature:  Date: 11-22-99  
Residence: Pleasanton, CA 94566  
Post Office Address: 878 Montevino Drive  
Pleasanton, CA 94566  
U.S.A. Country of Citizenship: United States of America

Full name of third inventor: TRUE-LON LIN

Inventor's signature: True Lon Lin

Date: 11-22-99

Residence:

Cupertino, CA 95014

Post Office Address:

21876 Meadowview Lane

Cupertino, CA 95014

U.S.A.

Country of Citizenship: United States of America

Full name of fourth inventor: CHENTSAU YING

Inventor's signature: Chent Sau Ying

Date: 11-19-99

Residence:

Cupertino, Cupertino 95014

Post Office Address:

10379 N. Blaney Avenue

Cupertino, CA 95014

U.S.A.

Country of Citizenship: Taiwan

Full name of fifth inventor: JOHN W. SCHALLER

Inventor's signature: John Schaller

Date: 11-22-99

Residence:

Morgan Hill, CA 95037

Post Office Address:

341 Wright Avenue

Morgan Hill, CA 95037

U.S.A.

Country of Citizenship: United States of America

(Declaration ends with this page)

(Rev. 6-93)

Office

OMB No. 0651-0011 (exp. 4/94)

## PATENTS ONLY

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original document or copy thereof.

## 1. Name of conveying party(ies):

Name of InventorsDate

Jeng Hwang 11/19/99  
 Steve S. Y. Mak 11/22/99  
 True-Lon Lin 11/22/99  
 Chentsau Ying 11/19/99  
 John W Schaller 11/22/99

Additional name(s) of conveying party(ies) attached? Yes ☐ No ☒

## 3. Nature of conveyance:

☒ Assignment

Merger

Security Agreement

Change of Name

Other

Execution Date:

## 2. Name and address of receiving party(ies):

Name: Applied Materials, Inc.Internal Address: P.O. Box 450-A

Street Address: \_\_\_\_\_

City: Santa Clara State: CA Zip: 95052Additional name(s) & address(es) attached? ☐ Yes ☒ No

## 4. Application number(s) or registration number(s):

If this document is being filed together with a new application, the execution date of the application is: \_\_\_\_\_ (Date of Filing)

A. Patent Application No.(s) 09/421,467 Filled: 19OC1999

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Patent CounselInternal Address: APPLIED MATERIALS, INC.Street Address: P.O. Box 450-ACity: Santa Clara State: CA Zip: 950526. Total number of applications and patents involved: 17. Total fee (37 C.F.R. 3.41) \_\_\_\_\_ \$ 40.00☐ Enclosed☒ Authorized to be charged to deposit account50-1074

## 8. Deposit account number:

50-1074

DO NOT USE THIS SPACE

## 9. Statement and signature.

*To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.*ROBERT W. MULCAHY Reg No. 25,436

Name of Person Signing

Signature

Date

1-6-2000Total number of pages including cover sheet, attachments and document: 3

Mail documents to be recorded with required cover sheet information to:  
 Commissioner of Patents & Trademarks, Box Assignment  
 Washington, D.C. 20231

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# **ASSIGNMENT FOR APPLICATION FOR PATENT**

## **WHEREAS:**

### **Names and Addresses of Inventors:**

- |  |  |
|--|--|
| <p>1) <b>JENG H. HWANG</b><br/>Cupertino, CA 95014<br/>20835 Scofield Drive<br/>Cupertino, California 95014<br/>U.S.A.</p> | <p>2) <b>STEVE S.Y. MAK</b><br/>Pleasanton, CA 94566<br/>878 Montevino Drive<br/>Pleasanton, CA 94566<br/>U.S.A.</p>         |
| <p>3) <b>TRUE-LON LIN</b><br/>Cupertino, CA 95014<br/>21876 Meadowview Lane<br/>Cupertino, CA 95014<br/>U.S.A.</p>         | <p>4) <b>CHENTS AU YING</b><br/>Cupertino, Cupertino 95014<br/>10379 N. Blaney Avenue<br/>Cupertino, CA 95014<br/>U.S.A.</p> |
| <p>5) <b>JOHN W. SCHALLER</b><br/>Morgan Hill, CA 95037<br/>341 Wright Avenue<br/>Morgan Hill, CA 95037<br/>U.S.A.</p>     |  |

(hereinafter referred to as Assignors), have invented a certain invention entitled:

## **"IMPROVED MASKING METHODS AND ETCHING SEQUENCES FOR PATTERNING ELECTRODES OF HIGH DENSITY RAM CAPACITORS**

for which application for Letters Patent in the United States was filed on 19OC1999, under serial number 09/421,467 and;

WHEREAS, Applied Materials, Inc., a corporation of the State of Delaware, having a place of business at 3050 Bowers Avenue, Santa Clara, California 95054 (hereinafter referred to as Assignee), is desirous of acquiring the entire right, title and interest in and to said application (hereinafter referred to as Application), and the invention disclosed therein (hereinafter referred to as Invention), and in and to all embodiments of the Invention, heretofore conceived, made or discovered by said Assignors, and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter referred to as Patents) thereon granted in any and all countries and groups of countries.

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Assignors to have been received in full from said Assignee:

1. Said Assignors hereby sell, assign, transfer and convey to Assignee the full and exclusive right, title and interest (a) in and to said Application and said Invention; (b) in and to all rights to apply for patents on said Invention in any and all countries pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all Applications filed and any and all Patents granted on said Invention in any and all countries and groups of countries, including each and every Application filed and each and every Patent granted on any application which is a division, substitution, or continuation of said Application; and (d) in and to each and every reissue or extension of any of said Patents.

2. Said Assignors hereby covenant and agree to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest to said Invention herein conveyed in any and all countries and groups of countries. Such cooperation by said Assignors shall include prompt production of pertinent facts and documents, giving testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent



deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, divisional, continuing or additional applications covering said Invention; (d) for filing and prosecuting applications for resistance of any of said Patents; (e) for interference or other priority proceedings involving said Invention; and (f) for legal proceedings involving said Invention and any application therefor and any Patents granted thereon, including without limitation opposition proceedings, cancellation proceedings, priority contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Assignors in providing such cooperation shall be paid for by said Assignee.

3. The term and covenants of this agreement shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Assignors, their respective heirs, legal representatives and assigns.

4. Said Assignors hereby warrant and represent that they have not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

IN WITNESS WHEREOF, the said Assignors have executed and delivered this instrument to said Assignee on the dates indicated below.

1) 11-19, 1999 Jeng H. Hwang  
JENG H. HWANG

2) 11-22, 1999 Steve S.Y. Mak  
STEVE S.Y. MAK

3) 11-22, 1999 True-Lon Lin  
TRUE-LON LIN

4) 11-19, 1999 Chent Sau Ying  
CHENTSAU YING

5) 11-22, 1999 John W. Schaller  
JOHN W. SCHALLER